

## Summary Of The MNS Engineering Report

MNS Engineering was retained to provide concept development services for the project. The scope of work included the evaluation of existing and future conditions related to City and private utilities, adjacent land uses, sight distance, accessibility, level of service and volume, and collisions. Subsequent to evaluating existing and future conditions, MNS was tasked to develop three conceptual designs for further consideration. Subsequent to evaluating the effects of each of the proposals, the consultant was tasked with recommending a preferred concept alternative. The proposed improvements comply with Caltrans and City specifications related to existing policies, standards, and guidelines. In addition to the information included in this report, the study contains a summary of traffic signal warrants, and unsignalized intersection capacity analysis.

### *Existing conditions*

De La Vina Street is a two lane one way principal arterial traversing commercial, residential, and mixed land uses with many driveways. The approximate dimensions of the street include two ten foot travel lanes and two eight foot parking lanes. Turning movements are made from shared through lanes. The posted speed limit is 30 miles per hour (mph). North of Carrillo Street, De La Vina carries 8,600 vehicles per day. To the south of Carrillo, the traffic volume is 6,000 vehicles per day. Weekday volumes on Figueroa Street are 3,200 cars on the West 100 block, and 2,200 on the West 200 block. Canon Perdido traffic volumes are 700 to 800 vehicles per day. The speed limit on both streets is 25 mph. Multiple commercial destinations exist near both intersections, generating high levels of pedestrian, bicycle, and vehicle traffic.

### *De La Vina At Figueroa*

MNS identified intersection deficiencies at De La Vina at Figueroa, which are listed below:

- 1) West Figueroa westbound approach operated at a Level of Service (LOS) F and eastbound at LOS D, during the PM peak hour (4:30 to 5:30). This was prior to MTD's relocation of their turn around from Figueroa to Anapamu.
- 2) No pedestrian signage or markings at crosswalk.
- 3) The 85<sup>th</sup> percentile speed is close to the posted speed of 30 mph with 5% of the traffic driving in excess of 35 mph.
- 4) Minimal intersection lighting.
- 5) Sight distance of 200 feet satisfies only the minimum distance.
- 6) Long crossing distances on De La Vina Street north and south legs.
- 7) Crossing concrete gutter on the eastern side of the intersection slows vehicle speeds during turning movements.
- 8) No designated bicycle facilities.

The project improvements prepared for consideration at De La Vina at Figueroa include the following:

Concept A: Multi-way stop for all approaches- the PM peak hour LOS on De La Vina will decrease from A to D. Improvement in the LOS on Figueroa.

Concept B: Multi-way stop with curb extensions- the PM peak hour LOS on De La Vina will decrease from A to D. Improvement in the LOS on Figueroa.

Concept C: Two way stop for side street approaches, curb extensions, and pedestrian actuated flashing beacons. No improvement to LOS on Figueroa.

Concept D: Curb extensions with traffic signal.

#### *De La Vina At Canon Perdido*

MNS identified the following intersection deficiencies at De La Vina at Canon Perdido:

- 1) West Canon Perdido westbound approach operates as a LOS D, and eastbound at LOS C during PM peak hour.
- 2) It appears the number of gaps for a left turn movement from West Canon Perdido might be small.
- 3) South leg pedestrian crosswalk pavement marking only, no additional pedestrian signage.
- 4) Restricted stopping sight distance of 130 feet due to on street parking and street trees.
- 5) Minimal intersection lighting level.
- 6) Long crossing distances on De La Vina Street north and south legs.
- 7) No designated bicycle facilities.

The project improvements prepared for consideration at De La Vina at Canon Perdido include the following:

Concept A: Advanced pavement striping to include shared through left-turn lane, bike lane, and an exclusive right turn lane.

Concept B: Advanced pavement striping to include shared through left-turn lane, bike lane, and an exclusive right turn lane with curb extensions.

Concept C: Introduction of exclusive left turn only lane, through right lane, and curb extensions.

Concept D: Removal of tree and on street parking to improve sight distance.

The following weighted decision matrix was completed by MNS in order to evaluate the various concepts against the factors of vehicular level of service, traffic safety, pedestrian safety and convenience, bicycle safety and convenience, public transit impact, intersection aesthetics, neighborhood impact, parking impact, noise pollution, and cost. The recommended concept was developed to address the needs of the motorists and the pedestrians.

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## **Weighted Matrix**

The City of Santa Barbara has requested MNS to provide a weighted matrix to help summarize and rank the value of each option based upon various factors.

Table 2-11 identifies the rated rankings and weighted importance factor rankings used for this intersection. Totals and weighted totals are provided in the table.

Rated Rankings: A range from -2 to +2 in whole numbers, used to provide a value on the improvement listed, in addition, to provide a numerical value to the intersection option.

- 2 = Significant Negative Benefit Related to Option
- 1 = Some Negative Benefit Related to Option
- 0 = Neutral no Impact or Benefit with Option
- +1 = Some Benefit Related to Option
- +2 = Significant Benefit Related to Option

Weighted Importance Factor Rankings: A bias range from 1 to 3 in whole numbers, used to adjust the rated ranking above based on the community's perception of importance.

- 1 = Low Value
- 2 = Moderate Value
- 3 = High Value

Table 2-11 Weighted Matrix – De La Vina Street at W. Figueroa Street

Evaluation Factor	Importance Factor (Used with Weighted Grand Total)	Intersection Options									
		2030 Existing Conditions – No Build Comparison		Option A – Multi- way Stop with Street Lighting		Option B – Multi- way Stop with Curb Extensions and Street Lighting		Option C – Curb Extensions with Flashing Beacons and Street Lighting		Option D – Traffic Signal with Curb Extensions	
		Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
<b>Vehicle Facilities</b>											
Level of Service (LOS) - De La Vina Street	3	2	6	-1	-3	-1	-3	2	6	1	3
Level of Service (LOS) – W. Figueroa Street	1	-2	-2	1	1	2	2	-2	-2	2	2
Traffic Safety	3	-1	-3	1	3	2	6	1	3	1	3
<i>Sub-Total</i>		-1	1	1	1	3	5	1	7	4	8
<b>Pedestrian Facilities</b>											
Traffic Safety	3	-2	-6	1	3	2	6	2	6	2	6
Convenience	2	-2	-4	1	2	2	4	1	2	1	2
<i>Sub-Total</i>		-4	-10	2	5	4	10	3	8	3	8
<b>Bicycle Facilities</b>											
Traffic Safety	2	-1	-2	1	2	1	2	1	2	1	2
Convenience	1	-1	-1	-1	-1	-1	-1	1	1	-1	-1
<i>Sub-Total</i>		-2	-3	0	1	0	1	2	3	0	1
<b>Public Transit Facilities</b>											
MTD Bus LOS on W. Figueroa Street	3	-2	-6	1	3	2	6	-2	-6	2	6
<i>Sub-Total</i>		-2	-6	1	3	2	6	-2	-6	2	6
<b>Intersection Aesthetics and Neighborhood Desirability</b>											
Landscape Potential	1	0	0	0	0	1	1	1	1	1	1
Minimized Parking Loss	1	0	0	1	1	1	1	-1	-1	1	1
Neighborhood Safety and Convenience	2	-1	-2	1	2	1	2	1	2	1	2
Noise Pollution	1	1	1	-1	-1	-1	-1	1	1	-1	-1
<i>Sub-Total</i>		0	-1	1	2	2	3	2	3	2	3
<b>Cost of Improvements</b>											
Cost of Improvements	1	2	2	1	1	-1	-1	-2	-2	-2	-2
<i>Sub-Total</i>		2	2	1	1	-1	-1	-2	-2	-2	-2
<b>Total (Non-Weighted)</b>		-7		6		10		4		9	
<b>Weighted Grand Total</b>		-17		13		24		13		24	

Table 3-11  
Weighted Matrix – De La Vina Street at W. Canon Perdido Street

Weighted Matrix – De La Vina Street at W. Canon Perdido Street												
Evaluation Factor		Importance Factor (Used with Weighted Grand Total)	Intersection Options									
			2030 Existing Conditions – No Build Comparison		Option A – Straight-Left / Bicycle / Right Turn Lane with Street Lighting		Option B – Straight-Left / Bicycle / Right Turn Lane with Curb Extensions and Street Lighting		Option C – Left Turn Lane / Straight – Right with Curb Extensions and Street Lighting		Option D – Tree and Parking Removal with Street Lighting	
			Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
<b>Vehicle Facilities</b>												
Level of Service (LOS) - De La Vina Street	2		2	4	2	4	2	4	2	4	2	4
Level of Service (LOS) – W. Canon Perdido Street	1		-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Traffic Safety	3		-2	-6	1	3	2	6	2	6	2	6
Sub-Total			-2	-4	1	5	2	8	2	8	2	8
<b>Pedestrian Facilities</b>												
Traffic Safety	2		-2	-4	1	2	2	4	2	4	2	4
Convenience	1		-2	-2	1	1	2	2	2	2	1	1
Sub-Total			-4	-6	2	3	4	6	4	6	3	5
<b>Bicycle Facilities</b>												
Traffic Safety	1		-1	-1	2	2	2	2	-1	-1	0	0
Convenience	1		-1	-1	2	2	2	2	-1	-1	-1	-1
Sub-Total			-2	-2	4	4	4	4	-2	-2	-1	-1
<b>Public Transit Facilities</b>												
Bus Stop Relocation on De La Vina Street	1		0	0	-1	-1	-1	-1	-1	-1	0	0
Sub-Total			0	0	-1	-1	-1	-1	-1	-1	0	0
<b>Intersection Aesthetics and Neighborhood Desirability</b>												
Landscape Potential	1		0	0	0	0	1	1	1	1	0	0
Minimized Parking Loss	2		1	2	-2	-4	-2	-4	-1	-2	-1	-2
Neighborhood Safety and Convenience	2		-1	-2	1	2	2	4	2	4	1	2
Tree Removal	2		0	0	0	0	0	0	0	0	-2	-4
Sub-Total			0	0	0	0	1	1	2	3	-2	-4
<b>Cost of Improvements</b>												
Cost of Improvements	1		2	2	1	1	-2	-2	-2	-2	1	1
Sub-Total			2	2	1	1	-2	-2	-2	-2	1	1
<b>Total (Non-Weighted)</b>			-6		7		8		3		3	
<b>Weighted Grand Total</b>			-10		12		16		12		9	